Science GE DOK Alignment Chart **PHYSICAL SCIENCE** **Grades 5-6** **GE 9-15**

DOK & NECAP Release Item Codes	GE Statement with Ceiling DOK	Science Concepts	Examples/Practice Items
Enduring Knowledge: All living and non-living things are composed of matter having characteristic properties that distinguish one substance from another.			
DOK 3 PS1(5-8)INQ-1 PS1(5-8)INQ + POC-2 PS1(5-8)SAE + MAS-4 PS1(5-8)MAS-5	**S5-6:9** (DOK 3) **Students demonstrate their understanding of the Properties of Matter by…** • Investigating and developing conclusions that explain how the **relative volume or mass** of an object affects the density of the object.	Science Concepts: a. All substances have a unique density that depends on the volume (amount of space) that the substance is packed into. b. The relative densities of substances can be observed and described.	(DOK 2) • Explain the relationship among mass, volume, and density of an object. (DOK 3) • Explain why the volume of cereal changes, while the mass remains the same. • Design an investigation to determine which cereal would be most economical in terms of volume, cost and mass.
S5-6:10 Not assessed at this grade level.			
S5-6:11 Not assessed at this grade level.			
S5-6:12 Not assessed at this grade level.			
DOK 1 PS1(5-8)INQ-1	**S5-6:13** (DOK 1) **Students demonstrate their understanding of the Properties of a Gas by…** • Measuring the mass of a gas (e.g., air in a basketball).	Science Concept: a. Gas is a state of matter that has mass.	
Enduring Knowledge: A transfer of energy can result in the physical change of state of a substance.			
DOK 2 PS1(5-8)INQ + POC-2	**S5-6:14** (DOK 2) **Students demonstrate their understanding of Physical Change by…** • **Predicting the effect** of heating and cooling on the physical state and the mass of a substance.	Science Concepts: a. Energy is required to transform the **physical state** of a substance from solid to liquid to gas, while conserving mass. Physical changes are reversible.	(DOK 2) • Predict how mass and volume of an ice cube will be affected when heat is applied. (DOK 3) • Using what you know about physical properties, explain how you could separate a mixture of alcohol and water.
Enduring Knowledge: When matter undergoes a chemical change it turns into a new and different substance whose properties are different from the original. No matter how substances interact with one another, the total mass of the system remains the same.			
DOK 2 PS1(5-8)INQ + SAE-3	**S5-6:15** (DOK 2) **Students demonstrate their understanding of Chemical Change by…** • Observing evidence of simple chemical change to identify that new substances are formed when a chemical reaction has occurred (e.g., rusted nail, vinegar combined with baking soda).	Science Concepts: a. Simple **chemical reactions** will produce new substances that might be indicated by a different state of matter, a color change, or a temperature change of the substances.	(DOK 2) • Describe and explain what will happen to the mass of 25g of water when it is cooled from 20° C to 10° C.

Science GE DOK Alignment Chart **PHYSICAL SCIENCE** **Grades 5-6** **GE 16-21**

DOK & NECAP Release Item Codes	GE Statement with Ceiling DOK	Science Concepts	Examples/Practice Items
Enduring Knowledge: The nucleus of some atoms is unstable and may spontaneously decay.			
S5-6:16 Not assessed at this grade level.			
S5-6:17 Not assessed at this grade level.			
S5-6:18 Not assessed at this grade level.			
Enduring Knowledge: Everything is constantly moving; motion is relative, but the motion of an object can be described and predicted by tracing and measuring its position over time.			
DOK 2 PS3(5-8)SAE + POC-8	**S5-6:19** (DOK 2) **Students demonstrate their understanding of Motion by…** • Measuring and calculating **speed** (the distance an object moves over a measured amount of time).	Science Concepts: a. Speed indicates the rate at which an object is traveling. b. Speed is a relationship between the distance an object travels and time elapsed.	
DOK 3 PS3(5-8)SAE + POC-8	**S5-6:20** (DOK 3) **Students demonstrate their understanding of Motion by**… • Design an investigation to collect evidence about an object's **inertia** and explaining their observation in terms of the object's tendency to resist a change in motion.	Science Concepts: a. Inertia is the tendency of an object to resist a change in motion and depends upon the object's mass. Stationary objects tend to remain stationary; moving objects tend to continue moving (Newton's First Law).	
Enduring Knowledge (Force): Force is an influence that can change the motion of an object.			
DOK 2 PS3(5-8)SAE + POC-8	**S5-6:21** (DOK 2) **Students demonstrate their understanding of Force by…** • Investigating variables that change an object's speed, direction, or both, and identifying and describing the forces that cause the change in motion.	Science Concepts: a. A force applied to a moving object will change the object's speed, direction or both. b. Friction is a force that often opposes motion. c. Gravity and magnetism are examples of long-range forces that do not require direct contact of the interacting objects.	

Science GE DOK Alignment Chart **PHYSICAL SCIENCE** **Grades 5-6** **GE 22-25**

DOK & NECAP Release Item Codes	GE Statement with Ceiling DOK	Science Concepts	Examples/Practice Items
Enduring Knowledge: Force is an influence that can change the motion of an object.			
DOK 3 **ESS2(5-8)SAE + POC-8**	**S5-6:22** **(DOK 3)** **Students demonstrate their understanding of Gravitational force by…** • Predicting and explaining the effect of **gravitational forces** between pairs of objects (i.e., earth and objects' on the surface, earth and moon, earth and sun).	Science Concepts: a. Gravity is the force that holds objects to the earth's surface, keeps planets in orbit around the sun, and governs the rest of the motion in the solar system. b. The force of gravity pulls toward the center of mass of an object.	
Enduring Knowledge: Energy is necessary for change to occur. It is the ability of matter to bring about change. ***There are many forms of energy.** ***The total energy in the universe is constant.** ***Energy can be transformed and transferred, but not destroyed (Conservation of Energy).** ***Energy transfers and transformations exhibit the characteristics of systems with inputs, processes and outputs, as well as connections to other systems.**			
DOK 3 **PS2(5-8)SAE + POC-6** **PS2(5-8)INQ + SAE +POC-7** **ESS1-4**	**S5-6:23** **(DOK 3)** **Students demonstrate their understanding of Heat Energy by…** • Identifying real world applications where **heat energy** is transferred , using evidence to explain the direction that the heat energy flows.	Science Concepts: a. Heat energy only flows from high temperature to lower temperature in order to reach equilibrium (same temperature). b. Heat can move from one object to another by conduction.	
DOK 3 **PS2(5-8)SAE + POC-6**	**S5-6:24** **(DOK 3)** **Students demonstrate their understanding of Electrical Energy by…** • Exploring, describing and explaining the behavior of charged objects (static electricity) in terms of **charges** and **equilibrium**.	Science Concepts: a. Unbalanced charges produce a potential for a flow of electricity (Static Electricity). b. Unbalanced charges will move toward equilibrium because like charges repel, and opposite charges attract.	
DOK 1 **DOK 3** **PS2(5-8)SAE + POC-6**	**S5-6:25** **(DOK 3)** **Students demonstrate their understanding of Magnetism by…** • Identifying real world objects that demonstrate and utilize a magnetic force field acting over a distance. **AND** • Distinguishing between objects affected by **magnetic force** and objects affected by other non-contact forces, using evidence to explain this principle.	Science Concepts: a. Magnetism is a force field that acts over a distance.	

Science GE DOK Alignment Chart **PHYSICAL SCIENCE** **Grades 5-6** **GE 26-29**

DOK & NECAP Release Item Codes	GE Statement with Ceiling DOK	Science Concepts	Examples/Practice Items
Enduring Knowledge: Energy is necessary for change to occur. It is the ability of matter to bring about change. ***There are many forms of energy.** ***The total energy in the universe is constant.** ***Energy can be transformed and transferred, but not destroyed (Conservation of Energy).** ***Energy transfers and transformations exhibit the characteristics of systems with inputs, processes and outputs, as well as connections to other systems.**			
DOK 2 **DOK 3** **PS2(5-8)SAE + POC-6**	**S5-6:26** **(DOK 3)** **Students demonstrate their understanding of Electromagnetic Forces by…** • Exploring and explaining devices that demonstrate the magnetic effects of electricity and the electric effects of moving magnets. **AND** • Exploring and explaining the relationship between the device and the magnetic or electric effect it produces, citing evidence to support the explanation.	Science Concepts: a. Moving electrical charges [electricity] produce magnetic force [magnetism] (i.e., **electromagnet**, motor). b. Moving magnets produce electricity (e.g., **generator**).	
S5-6:27 Not assessed at this grade level.			
DOK 3 **PS2(5-8)SAE + POC-6**	**S5-6:28** **(DOK 3)** **Students demonstrate their understanding of Light Energy by…** • Designing demonstrations that represent the characteristics of **light energy** transfer.	Science Concepts: a. Light travels from an energy source (such as the sun) in straight lines. b. When light hits an object, it is absorbed, reflected, transmitted or some combination. c. Objects can be seen only when light waves are emitted from or reflected off the object and enter into the eye.	
DOK 2 **PS2(5-8)SAE + POC-6**	**S5-6:29** **(DOK 2)** **Students demonstrate their understanding of Sound Energy by…** • Generating a sound and identifying the path of vibration from the source to the ear.	Science Concepts: a. Sound is produced by vibrations in materials that set up wavelike disturbances that spread away from the source.	